

In the Claims:

1. (currently amended) A solid polymer fuel cell comprising a plurality of unit cells stacked one after another, said unit cell comprising an anion exchange membrane and a cation exchange membrane disposed adjacent but not in contact with one another[[,]] wherein a separation zone is disposed between said anion exchange membrane and said cation exchange membrane, and wherein a catalyst layer and a hydrogen electrode is disposed on one side of said anion exchange membrane and a catalyst layer and an oxygen electrode is disposed on the other side of said anion exchange membrane, wherein a catalyst layer and a hydrogen electrode is disposed on one side of said cation exchange membrane and a catalyst layer and an oxygen electrode is disposed on the other side of said cation exchange membrane said anion exchange membrane and said cation exchange membrane having catalyst layers on both sides thereof sandwiched between an electrode for fuel gas and an electrode for oxidizing gas, gas diffusion layers commonly disposed on both sides of said anion exchange membrane and said cation exchange membrane the outside of each of the electrodes for allowing electrons generated on each of the catalyst layers of the hydrogen electrode and the oxygen electrode to pass, and interconnectors having a gas channel which are disposed outside the gas diffusion layers and serve as current carriers and a gas channel disposed outside said gas diffusion layers and which crosses the portion of the gas diffusion layers contiguous to said anion exchange membrane and the portion of the gas diffusion layers contiguous to said cation exchange membrane so as to connect both of the portions, in which the gas channel on one side of said membranes is for feeding hydrogen to the hydrogen electrode while the gas channel on the other side is for feeding oxygen to the oxygen electrode, wherein said gas channel is disposed on an interconnector.

2. (cancelled)

3. (previously presented) The fuel cell according to Claim 1, wherein the anion exchange membrane comprises a heat-resistant polymer having an anionic group.

4. (previously presented) The fuel cell according to Claim 1, wherein the anion exchange membrane comprises a perfluorinated anion exchange membrane.

5. (previously presented) The fuel cell according to Claim 1, wherein the cationic exchange membrane comprises a perfluorinated cation exchange membrane.

6. (previously presented) The fuel cell according to Claim 1, wherein at least one of said gas diffusion layers comprises carbon paper.

7. (previously presented) The fuel cell according to Claim 1, wherein the cation exchange membrane and the anion exchange membrane are vertically disposed relative to each other.

8. (previously presented) The fuel cell according to Claim 1, wherein the gas channel crosses the cation exchange membrane and the anion exchange membrane at a plurality of points.

9. (previously presented) The fuel cell according to Claim 1, wherein the plurality of unit cells of said fuel cell are stacked one after another such that the anion exchange membranes and the cation exchange membranes of the fuel cell are alternately disposed in the same plane.

10. (previously presented) The fuel cell according to Claim 9, wherein said fuel cell comprises a plurality of gas channels which cross the plane on which the anion exchange membranes and cation exchange membranes are alternately disposed.

11. (currently amended) A solid polymer fuel cell comprising a plurality of unit cells stacked one after another, said unit cell comprising an anion exchange membrane comprising a heat resistant polymer having an anionic group and a cation exchange membrane disposed adjacent but not in contact with one another [,]] wherein a separation zone is disposed between said anion exchange membrane and said cation exchange

membrane, and wherein a catalyst layer and a hydrogen electrode is disposed on one side of said anion exchange membrane and a catalyst layer and an oxygen electrode is disposed on the other side of said anion exchange membrane, wherein a catalyst layer and a hydrogen electrode is disposed on one side of said cation exchange membrane and a catalyst layer and an oxygen electrode is disposed on the other side of said cation exchange membrane having catalyst layers on both sides thereof sandwiched between an electrode for fuel gas and an electrode for oxidizing gas, gas diffusion layers commonly disposed on both sides of said anion exchange membrane and said cation exchange membrane the outside of each of the electrodes for allowing electrons generated on each of the catalyst layers to pass, and interconnectors having a gas channel which are disposed outside the gas diffusion layers and serve as current carriers and a gas channel disposed outside said gas diffusion layers and which crosses the portion of the gas diffusion layers contiguous to said anion exchange membrane and the portion of the gas diffusion layers contiguous to said cation exchange membrane so as to connect both of the portions, in which the gas channel at one side of said membranes is for feeding oxygen to the oxygen electrode, wherein said gas channel is disposed on an interconnector.

12. (previously presented) The fuel cell according to Claim 11, wherein the anion exchange membrane comprises a perfluorinated anion exchange membrane.

13. (previously presented) The fuel cell according to Claim 11, wherein the cationic exchange membrane comprises a perfluorinated cation exchange membrane.

14. (previously presented) The fuel cell according to Claim 11, wherein at least one of said gas diffusion layers comprises carbon paper.

15. (previously presented) The fuel cell according to Claim 11, wherein the cation exchange membrane and the anion exchange membrane are vertically disposed relative to each other.

16. (previously presented) The fuel cell according to Claim 11, wherein the gas channel crosses the cation exchange membrane and the anion exchange membrane at a plurality of points.

17. (previously presented) The fuel cell according to Claim 11, wherein the plurality of unit cells of said fuel cell are stacked one after another such that the anion exchange membranes and the cation exchange membranes of the fuel cell are alternately disposed in the same plane.

18. (previously presented) The fuel cell according to Claim 17, wherein said fuel cell comprises a plurality of gas channels which cross the plane on which the anion exchange membranes and cation exchange membranes are alternately disposed.